

at least one layer of the substrate, (iv) at least one stopping compound with a polishing selectivity of the first metal layer:second layer of at least about 30:1, wherein the stopping compound is a cationically charged nitrogen containing compound selected from compounds comprising amines, imines, amides, imides, and mixtures thereof, and (v) a polishing pad and/or an abrasive.

Amendments to the Claims

Claims 32-35, 45, and 46 have been cancelled. No new matter has been added by way of these amendments. The precise amendments to the claims, as well as the pending claims as amended, are set forth on separate attachments hereto.

Summary of the Office Action

Claims 1-51 are subjected to a two-way restriction requirement. Claims 1-31, 36-44, and 47-51 stand rejected under 35 U.S.C. § 103(a) as obvious over Wang (i.e., U.S. Patent 5,770,103).

Discussion of Restriction Requirement

In response to the Office Action dated May 31, 2002, which sets forth a two-way restriction requirement, applicants confirm their telephonic provisional election, without traverse, of the invention of group I (i.e., claims 1-31, 36-44, and 47-51) for further prosecution. Accordingly, the claims of group II, i.e., claims 32-35, 45, and 46, have been cancelled.

Discussion of the Obviousness Rejection

The obviousness rejection of claims 1-31, 36-44, and 47-51 is respectfully traversed. Wang does not disclose a system for polishing a multi-layer substrate comprising at least one stopping compound with a polishing selectivity of the first metal layer:second metal layer of at least about 30:1, wherein the stopping compound is *a cationically charged nitrogen containing compound* selected from amines, imines, amides, imides, and mixtures thereof, as recited by the pending claims. Rather, Wang discloses a polishing composition comprising a *neutrally charged* compound, i.e., a mono-, di-, or tri-substituted phenol compound, which may comprise amine groups. The only examples given in Wang of suitable substituted phenol compounds are salicylic acid and 5-sulfosalicylic acid. Wang incorporates by reference U.S. Patents 5,391,258 and 5,476,606, which further disclose pyrocatechol and pyrogallol. None of these phenol compounds disclosed by Wang contains a cationically

charged nitrogen. In fact, none of the compounds disclosed even bears an overall cationic charge.


Moreover, there is nothing in Wang that teaches or remotely suggests that the use of a cationically charged nitrogen containing compound would improve the polishing selectivity of first metal layer to a second layer such that the selectivity was at least about 30:1, as recited in the pending claims. The Office Action suggests that one of ordinary skill in the art would have found it obvious to improve the polishing selectivity of the composition taught by Wang, despite the fact that Wang provides no teaching regarding how to modify the disclosed phenol compounds in order to achieve a higher selectivity. Absent any such teaching, the ordinarily skilled artisan would not be led to the claimed invention, even if the artisan were motivated to improve the polishing selectivity of the composition. Indeed, by following the disclosure of Wang, the ordinarily skilled artisan would be lead away from the claimed invention, since Wang only teaches the use of neutrally charged substituted phenol compounds.

Since Wang fails to teach or reasonably suggest the use of a cationically charged nitrogen-containing compound, the invention as recited in the pending claims cannot properly be considered obvious over Wang. Accordingly, the obviousness rejection should be withdrawn.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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Date: August 20, 2002

In re Appln. of Wang et al.
Application No. 09/636,246

CERTIFICATE OF MAILING

I hereby certify that this RESPONSE TO OFFICE ACTION (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231.

Date:

August 20, 2002

John Kilgus, Jr.